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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/593,288

09/18/2006

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EXAMINER

JAHAN, BILKIS

ART UNIT

PAPER NUMBER

2814

NOTIFICATION DATE

DELIVERY MODE

03/31/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/593,288	<b>Applicant(s)</b> WATANABE ET AL.	
	<b>Examiner</b> BILKIS JAHAN	<b>Art Unit</b> 2814	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12/22/09.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 1-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                     |                                                                   |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                         | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Double Patenting*

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 12-21 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 10, 8, 9, 10, 12, 13, 14, 15, 16, 17 of U.S. Patent No. US 2008/0042159 A1 in view of Uemura (US 6,331,450 B1):

Regarding claim 12, U.S. Patent No. US 2008/0042159 A1 discloses a gallium nitride-based compound semiconductor light-emitting device comprising transparent electrode having a contact metal layer in contact with a p-type semiconductor layer, a current diffusing layer on the contact metal layer, the current diffusing layer having an

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electrical conductivity larger than that of the contact metal layer, and a bonding pad layer on the current diffusing layer, wherein the thickness of the contact metal layer is from 0.1 to 7.5 nm (claims 1, 10). U.S. Patent No. US 2008/0042159 A1 does not explicitly disclose positive electrode although the electrode on the contact metal layer should be a positive electrode which is common in the art. However, Uemura discloses positive electrode 113 (Fig. 1, col. 5, lines 15-16). Uemura teaches the above modification is used to improve the productivity and efficiency of the device (col. 2, lines 30-33). It would have been obvious to one of the ordinary skill of the art at the time of invention to replace US 2008/0042159 A1 structure with Uemura's structure as suggested above to improve the productivity and efficiency of the device (col. 2, lines 30-33).

Regarding claim 13, U.S. Patent No. US 2008/0042159 A1 discloses the contact metal layer is a platinum group metal or an alloy containing a platinum group metal (claim 8).

Regarding claim 14, U.S. Patent No. US 2008/0042159 A1 discloses the contact metal layer is platinum (claim 9).

Regarding claim 15, U.S. Patent No. US 2008/0042159 A1 discloses the thickness of the contact metal layer is from 0.1 to 5 nm (claim 10).

Regarding claim 16, U.S. Patent No. US 2008/0042159 A1 discloses the thickness of the contact metal layer is from 0.5 to 2.5 nm (claim 12).

Regarding claim 17, U.S. Patent No. US 2008/0042159 A1 discloses the current diffusing layer is a metal selected from the group consisting of gold, silver and copper, or an alloy containing at least one member of gold, silver and copper (claim 13).

Regarding claim 18, U.S. Patent No. US 2008/0042159 A1 discloses the current diffusing layer is gold (claim 14).

Regarding claim 19, U.S. Patent No. US 2008/0042159 A1 discloses the thickness of the current diffusing layer is from 1 to 20 nm (claim 15).

Regarding claim 20, U.S. Patent No. US 2008/0042159 A1 discloses the thickness of the current diffusing layer is from 1 to 10 nm (claim 16).

Regarding claim 21, U.S. Patent No. US 2008/0042159 A1 discloses the thickness of the current diffusing layer is from 3 to 6 nm (claim 17).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uemura (US 6,331,450 B1) in view of Nakajima et al (US 2002/0104999 A1).

Regarding claim 12, Uemura discloses a gallium nitride-based compound (Fig. 1, col. 4, lines 40-41) semiconductor light-emitting device (Fig. 1, col. 4, lines 40-41), comprising a transparent positive electrode 113 (Fig. 1, col. 5, lines 15-16) having

- ❖ a contact metal layer 111 (Fig. 1, col. 5, lines 10-11) in contact with a p-type semiconductor layer 106 (Fig. 1, col. 4, line 57),
- ❖ a current diffusing layer 112 (Fig. 1, col. 5, line 13-14) on the contact metal layer 111 (Fig. 1, col. 5, lines 10-11), the current diffusing layer having an electrical conductivity larger than that of the contact metal layer (inherent since materials are same), and
- ❖ Uemura's Fig. 1 modified by Uemura's Fig. 4A discloses a bonding pad layer 320 (Uemura, Fig. 4A, col. 8, line 28, common in the art) is on the current diffusing layer 112, 312 (Uemura, Figures 1, 3A).
- ❖ Uemura does not explicitly disclose the thickness of the contact metal layer is from 0.1 to 7.5 nm. However, Nakajima et al discloses the thickness of the contact metal layer is from 0.1 to 7.5 nm 17 (Fig. 15, paragraphs 69, 71).

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Nakajima teaches the above modification is used to increase the reflectance of the device (Para. 69). It would have been obvious to one of the ordinary skill of the art at the time of invention to replace Uemura's structure with Nakajima's structure as suggested above to increase the reflectance of the device (Para. 69).

Regarding claims 13, 14, Uemura further discloses the contact metal layer is a platinum group metal 111 (Fig. 1, col. 5, lines 10-11) or an alloy containing a platinum group metal and the contact metal layer is platinum 111 (Fig. 1, col. 5, lines 10-11).

Regarding claims 15-16, Uemura modified by Nakajima further discloses the thickness of the contact metal layer is from 0.1 to 5 nm; wherein the thickness of the contact metal layer is from 0.5 to 2.5 nm (Nakajima, Para. 69).

Regarding claims 17, 18, Uemura further discloses the current diffusing layer 112 (Fig. 1, col. 5, line 13-14) is a metal selected from the group consisting of gold 112 (Fig. 1, col. 5, line 13-14), silver and copper, or an alloy containing at least one member of gold, silver and copper and the current diffusing layer is gold 112 (Fig. 1, col. 5, line 13-14).

Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uemura (US 6,331,450 B1) in view of Nakajima et al (US 2002/0104999 A1) as applied to claim 12 above and further in view of Okazaki et al (5,977,566).

Regarding claims 19-21, Uemura in view of Nakajima discloses limitations in claim 12 above but does not explicitly disclose the thickness of the current diffusing layer is from 1 to 20 nm; the thickness of the current diffusing layer is from 1 to 10 nm; the thickness of the current diffusing layer is from 3 to 6 nm. However, Okazaki et al discloses the thickness of the current diffusing layer is from 1 to 20 nm; the thickness of the current diffusing layer is from 1 to 10 nm; the thickness of the current diffusing layer is from 3 to 6 nm 14A, 14B, 14C (Fig. 8, col. 9, lines 45-55). Okazaki teaches the above modification is used to reduce sheet resistance of the current spreading layer (col. 8, lines 58-59). It would have been obvious to one of the ordinary skill of the art at the time of invention to replace Uemura's in view of Nakajima's structure with Okazaki's structure as suggested above to reduce sheet resistance of the current spreading layer (col. 8, lines 58-59).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BILKIS JAHAN whose telephone number is (571)270-5022. The examiner can normally be reached on M-F, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571)-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BJ

/Wai-Sing Louie/  
Primary Examiner, Art Unit 2814